THE CLAIMS

What is claimed is:

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1.   A system for central management, storage and
report generation of remotely captured paper transactions
from documents and receipts comprising:

one or more remote data access subsystems for
capturing and sending paper transaction data comprising
at least one data access controller for managing the
capturing and sending of the transaction data;

15   at least one central data processing subsystem for
processing, sending, verifying and storing the paper
transaction data comprising a data management subsystem
for managing the processing, sending and storing of the
transaction data; and

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at least one communication network for the
transmission of the transaction data within and between
said one or more data access subsystems and said at least
one data processing subsystem.

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2.   A system as in claim 1 wherein said one or more
data access subsystems further comprise at least one
scanner for capturing the paper transaction data.

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3.   A system as in claim 2 wherein said one or more
data access subsystems also capture electronic
transactions from credit cards, smart cards and debit
cards, signature data or biometric data, further
35 comprising:

PEDC-93965.2

at least one card interface for capturing the electronic transaction data;

at least one signature interface for capturing an electronic signature; and

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at least one biometric interface for capturing biometric data.

10   4. A system as in claim 3 wherein said at least one data access controller successively transforms the captured transaction data to a bitmap image, a compressed bitmap image, an encrypted, compressed bitmap image and an encrypted, compressed bitmap image tagged with
15 information identifying a location and time of the transaction data capture.

5. A system as in claim 4 wherein said one or more
20 data access subsystems further comprise digital storage for storing the tagged, encrypted, compressed bitmap image.

25   6. A system as in claim 5 wherein said at least one card interface initiates the electronic transaction.

7. A system as in claim 6 wherein said one or more
30 data access subsystems further comprise at least one printer for printing the paper transaction initiated by said at least one card interface.

35   8. A system as in claim 7 wherein the paper transaction printed by said at least one printer includes data glyphs.

9.   A system as in claim 1 wherein said data
management subsystem of said at least one data processing
subsystem comprises:

5   at least one server for polling said one or more
remote data access subsystems for transaction data;

a database subsystem for storing the transaction
data in a useful form;

10   a report generator for generating reports from the
transaction data and providing data to software
applications;

at least one central processing unit for managing
the storing of the transaction data;

15   a domain name services program for dynamically
assigning one of said at least one server to receive
portions of the transaction data for balancing the
transaction data among said at least one server; and

20   a memory hierarchy.

10.   A system as in claim 9 wherein said at least
one server also polls for biometric and signature data,
25 said database stores the biometric data and the signature
data, and said at least one central processing unit
verifies the biometric data and the signature data.

30   11.   A system as in claim 9 wherein said memory
hierarchy comprises at least one primary memory for
storage of recently accessed transaction data and at
least one secondary memory for storage of other
transaction data.

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12. A system as in claim 11 wherein said at least
one secondary memory comprises at least one write once
read many jukebox and at least one optical storage
jukebox.

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13. A system as in claim 12 wherein said at least
one optical storage jukebox comprises read only memory
technology including compact disc read only memory form
10 factor metallic write once read many disc.

14. A system as in claim 9 wherein said database
subsystem comprises at least one predefined template for
15 partitioning the stored transaction data into panels and
identifying locations of the panels.

15. A system as in claim 14 wherein said data
20 processing subsystem further comprises a data entry
gateway for correcting errors in the panels of stored
transaction data.

25   16. A system as in claim 1 wherein said at least
one communication network comprises:

at least one first local area network for
transmitting data within a corresponding one of said one
or more remote data access subsystems;
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at least one second local area network for
transmitting data within a corresponding one of said at
least one data processing subsystem; and

at least one wide area network for transmitting data
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between said one or more remote data access subsystems
and said at least one data processing subsystem.

17.   A system as in claim 16 wherein said at least one communication network further comprises:

at least one modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network of said at least one data processing subsystem through said at least one wide area network; and

10   at least one bank of modems for connecting said at least one second local area network of said at least one data processing subsystem to a corresponding some of said at least one first local area network of said one or more data access subsystems through said at least one wide 15 area network.

18.   A system as in claim 1 further comprising at least one data collecting subsystem for collecting and 20 sending the electronic or paper transaction data comprising a further management subsystem for managing the collecting and sending of the transaction data.

25   19.   A system as in claim 18 wherein said further data management subsystem of said at least one data collecting subsystem comprises:

at least one server for polling said one or more remote data access subsystems for transaction data; 30

a database for storing the transaction data in a useful form;

at least one central processing unit for managing the collecting of the transaction data; 35

a domain name services program for dynamically assigning one of said at least one server to receive

portions of the transaction data for balancing the transaction data among said at least one server; and

a memory hierarchy.

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20. A system as in claim 19 wherein said memory hierarchy comprises at least one primary memory for collecting transaction data and at least one secondary memory for backup storage of the transaction data.

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21. A system as in claim 20 wherein said at least one secondary memory comprises at least one DLT jukebox.

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22. A system as in claim 18 wherein said at least one communication network comprises:

at least one first local area network for
20 transmitting data within a corresponding one of said one or more remote data access subsystems;

at least one second local area network for transmitting data within a corresponding one of said at least one data collection subsystem;

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at least one third local area network for transmitting data within a corresponding one of said at least one data processing subsystem; and

at least one wide area network for transmitting data
30 between said one or more remote data access subsystems, said at least one data collection subsystem and said at least one data processing subsystem.

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23. A system as in claim 22 wherein said at least one communication network further comprises:

at least one first modem for connecting said at least one first local area network of said one or more data access subsystems to a corresponding one of said at least one second local area network through said at least

5 one wide area network;

at least one bank of modems for connecting said at least one second local area network of said at least one data collection subsystem to a corresponding some of said at least one first local area network of said one or more

10 data access subsystems through said at least one wide area network;

at least one first wide area network router for connecting a corresponding one of said at least one

15 second local area network of said at least one data collecting subsystem to said at least one wide area network; and

at least one second wide area network router for connecting a corresponding one of said at least one third

20 local area network of said at least one data processing subsystem to said at least one wide area network.

24. A system as in claim 23 wherein said at least

25 one first wide area network and said at least one second wide area network comprises a carrier cloud, said carrier cloud using a frame relay method for transmitting the 'transaction data.

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25. A system as in claim 22 wherein said at least one second local area network and said at least one third local area network further comprises a corresponding one of at least one network switch for routing transaction

35 data within said at least one second local area network and said at least one third local area network.

26.   A method for central management, storage and
verification of remotely captured paper transactions from
documents and receipts comprising the steps of:

capturing and sending the paper transaction data at
5 one or more remote locations;

managing the capturing and sending of the
transaction data;

collecting, processing, sending and storing the
10 transaction data at a central location;

managing the collecting, processing, sending and
storing of the transaction data; and

transmitting the transaction data within and between
15 the remote location(s) and the central location.

27.   The method as in claim 26 wherein said managing
the capturing and sending step comprises the steps of:
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successively transforming the captured transaction
data to a bitmap image, a compressed bitmap image, an
encrypted, compressed bitmap image and an encrypted,
compressed bitmap image tagged with information
25 identifying a location and time of the transaction data
capturing; and

storing the tagged, encrypted, compressed bitmap
· image.

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28.   The method as in claim 27 wherein said managing
the capturing and sending step also captures electronic
transactions from credit cards, smart cards and debit
cards, signature data or biometric data, further
35 comprising the steps of:

initiating an electronic transaction;

- 47 -

capturing signature data;

capturing biometric data; and

printing a paper transaction with data glyphs for
5 the initiated electronic transaction.

29. A method as in claim 26 wherein:

said capturing and sending step occurs at a
10 plurality of remote locations; and

said collecting, processing, sending and storing
step occurs at a plurality of central locations.

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30. A method as in claim 29 wherein said
collecting, processing, sending and storing step
comprises the steps of:

polling the remote locations for transaction data
20 with servers at the central locations;

storing the transaction data at the central location
in a memory hierarchy, said storing maintains recently
accessed transaction data in a primary memory and other
25 transaction data in a secondary memory; and

dynamically assigning the servers at the central
location to receive portions of the transaction data for
balancing the transaction data among the servers; and

30 generating reports from the transaction data and
providing data to software applications.

31. A method as in claim 30 wherein said storing
35 the transaction data step comprises the steps of:

- 48 -

partitioning the stored transaction data with predefined templates into panels; and

identifying locations of the panels.

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32.   A method as in claim 31 wherein said managing the collecting, processing, sending and storing of the transaction data step comprises correcting errors in the panels of stored transaction data.

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33.   A method as in claim 32 further comprising the steps of:

15   polling the remote locations for captured electronic data, captured signature data and captured biometric data with servers at the central locations; and

comparing the captured signature data and the captured biometric data to stored signature data and stored biometric data respectively for identification verification.

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34.   A method as in claim 32 wherein said transmitting the transaction data step comprises the steps of:

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transmitting data within the remote locations;

transmitting data from each remote location to a corresponding central location; and

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transmitting data within the central locations.

35.   A method as in claim 34 wherein said transmitting data from each remote location to a

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corresponding central location step comprises the steps of:

    connecting each remote location to a corresponding central location; and

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    connecting each central location to corresponding remote locations.

10   36. A method as in claim 29 further comprising the steps of:

    collecting and sending the electronic or paper transaction data at intermediate locations;

15   managing the collecting and sending of the transaction data; and

    transmitting the transaction data within the intermediate location and between the intermediate locations and the remote locations and the central

20 locations.

    37. A method as in claim 36 wherein said managing the collecting and sending step comprises the steps of:

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    polling the remote locations for transaction data with servers in the intermediate locations;

    storing the transaction data in the intermediate locations in a useful form, said storing maintains the

30 transaction data in a primary memory of a memory hierarchy and performs backup storage of the transaction data into a secondary memory of the memory hierarchy; and

    dynamically assigning the servers to receive

35 portions of the transaction data for balancing the transaction data among the servers.

38.   The method as in claim 36 wherein said transmitting the transaction data step comprises the steps of:

5   transmitting data within the remote locations;

         transmitting data from each remote location to a corresponding intermediate location;

         transmitting data within the intermediate locations;

10   transmitting data from each intermediate location to corresponding central locations; and

         transmitting data within the central locations.

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         39.   A method as in claim 38 wherein said transmitting data from each remote location to corresponding intermediate locations step comprises the steps of:

20   connecting each remote location to a corresponding intermediate location; and

         connecting the intermediate locations to corresponding remote locations.

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         40.   A method as in claim 38 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:

30   connecting each intermediate location to an external communication network; and

         connecting the corresponding central locations to the communication network.

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41. A method as in claim 40 wherein said transmitting data from each intermediate location to corresponding central locations step further comprises the steps of:

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packaging the transaction data into frames; and

transmitting the frames through the external communication network.

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42. A communication network for the transmission of data within and between one or more remote subsystems, at least one intermediate subsystem and at least one central subsystem forming a tiered architecture wherein each of

15 said at least one central data processing subsystem communicate with a corresponding some of said at least one data collecting subsystem and each of said at least one data collecting subsystem communicate with a corresponding some of said one or more data processing

20 subsystems comprising:

at least one first local area network for transmitting data within a corresponding one of said one or more remote subsystems;

25 at least one second local area network for transmitting data within a corresponding one of said at least one intermediate subsystem;

at least one third local area network for transmitting data within a corresponding one of said at

30 least one central subsystem; and

at least one wide area network for transmitting data between said one or more remote subsystems, said at least one intermediate subsystem and said at least one central

35 subsystem.

- 52 -

43.   A communication network as in claim 42 further
comprising:

at least one first modem for connecting said at
least one first local area network of said one or more
5 remote subsystems to a corresponding one of said at least
one second local area network through said at least one
wide area network;

at least one bank of modems for connecting said at
10 least one second local area network of said at least one
intermediate subsystem to a corresponding some of said at
least one first local area network of said one or more
remote subsystems through said at least one wide area
network;
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at least one first wide area network router for
connecting a corresponding one of said at least one
second local area network of said at least one
intermediate subsystem to said at least one wide area
network; and
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at least one second wide area network router for
connecting a corresponding one of said at least one third
local area network of said at least one central subsystem
to said at least one wide area network.
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44.   A system as in claim 43 wherein said at least
one first wide area network and said at least one second
wide area network comprises a carrier cloud which
30 utilizes a frame relay method for transmitting the
transaction data.

45.   A system as in claim 44 wherein said at least
35 one second local area network and said at least one third
local area network further comprises a corresponding one
of at least one network switch for routing transaction

PEDC-93965.2

data within said at least one second local area network
and said at least one third local area network; and
further wherein said data comprises (a) electronic
transactions from credit cards, smart cards and debit
5 cards, signature data or biometric data, or (b) paper
transactions from documents and receipts.

46. A method for transmitting data within and
10 between one or more remote subsystems, at least one
intermediate subsystem and at least one central subsystem
in a tiered manner wherein each of the central subsystems
communicate with a corresponding some of the intermediate
subsystems and each of the intermediate subsystems
15 communicate with a corresponding some of the remote
subsystems comprising the steps of:

transmitting data within the remote locations;

transmitting data from each remote location to a
20 corresponding intermediate location;

transmitting data within the intermediate locations;

transmitting data from each intermediate location to
corresponding central locations; and
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transmitting data within the central locations.

47. A method as in claim 46 wherein said
transmitting data from each remote location to
30 corresponding intermediate locations step comprises the
steps of:

connecting each remote location to a corresponding
intermediate location; and
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connecting the intermediate locations to
corresponding remote locations.

- 54 -

48. A method as in claim 47 wherein said transmitting data from each intermediate location to corresponding central locations comprises the steps of:

5   connecting each intermediate location to an external communication network; and

connecting the corresponding central locations to the external communication network.

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49. A method as in claim 48 wherein said transmitting data from each intermediate location to corresponding central locations step further comprises the steps of:

15   packaging the transaction data into frames; and

transmitting the frames through the external communication network.

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50. A method as in claim 46 wherein said data is obtained from (a) electronic transactions from credit cards, smart cards and debit cards, signature data or biometric data, or (b) paper transactions from documents 25 and receipts.

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